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BACKGROUNDER

BIOMEDICAL WASTE MANAGEMENT IN ONTARIO

OVERVIEW

- On June 3, 1992, the Ministry of the Environment (MOE) and the Ministry of Health (MOH), in co-operation with the Ontario Hospital Association (OHA), announced a strategy to address the issue of biomedical waste management in Ontario. The two ministries are inviting the public to comment on the proposed strategy through a 60-day public consultation period ending August 4, 1992.

- The aim of the biomedical waste strategy is to drastically reduce the amount of biomedical waste that is currently being incinerated or exported.

- This will be done, first, by changing the definition to reduce what qualifies as biomedical waste, and second, by encouraging the use of alternative non-incineration technologies.

- A planning process will be used to facilitate the development of new regional biomedical waste management facilities in the six health regions. This will allow a phasing-out of existing hospital incinerators that lack modern pollution controls with new facilities expected to be in operation 2-3 years after implementation of this strategy.

- Even after the quantity of biomedical waste is reduced, some residual amount may still require incineration for health reasons. Any incineration will be done in state-of-the-art facilities after public hearings.

NEW DEFINITION

- Biomedical waste is currently referred to as "pathological" waste in Ontario Regulation 309 under the *Environmental Protection Act*. As such, it is also classified as a hazardous waste and is therefore subject to the regulatory requirements for treatment and disposal.

- It is proposed that biomedical waste be defined more clearly as specific waste that is generated by human or animal health care facilities, medical research and medical teaching establishments, clinical testing or research laboratories, mortuaries, funeral establishments, facilities involved in the production and testing of vaccines, including wastes generated from mobile health care. This specific waste would include:

  - Human and infected animal tissues, organs, and body parts;
  - Cultures, stocks and specimens used in mirobiological analysis;
  - Human blood and body fluids removed during treatment and medical care;
  - Needles, scalpel blades, and other sharp objects;
  - Medical waste deemed by a trained person to require special handling; and
  - Medical waste which has come into contact with a person or animal infected by a virus or a disease listed in an attached schedule to Regulation 309.

- Biomedical waste would *not* include waste that is from animal husbandry or which is already controlled under a number of federal and provincial laws pertaining to the handling of dead animals and meat for human consumption.

- Biomedical waste does not include non-hazardous solid waste or other types of waste generated through food production, general building maintenance, and office administration.

- The new definition will mean that the amount of hospital waste currently referred to as biomedical waste will be reduced.

PROPOSED BIOMEDICAL WASTE MANAGEMENT STRATEGY

- The objective of the strategy is to make Ontario become self-sufficient in the management of its biomedical waste in the most environmentally-responsible manner.

- The proposed strategy calls for:

  - Establishment of regional biomedical waste planning committees in the six Ministry of Health planning regions.

  - Development of regional biomedical waste disposal facilities in the six regions.

  - Technical and information support to regional planning committees such as waste quantities data for the calculation of waste generation rates and testing and performance data for non-incineration technologies.

  - An emphasis on the use of non-incineration technologies where feasible.

  - Phase-out of existing biomedical waste incinerators when regional facilities become operational.

- The strategy is described in more detail in ***A Strategy for the Development of New Biomedical Waste Management Facilities in Ontario*** June 1992, Ministry of the Environment, Ministry of Health, and the Ontario Hospital Association.

PROPOSED APPROVAL REQUIREMENTS

- All biomedical waste management facilities developed as part of a regional plan would require approval under Part V of the *Environmental Protection Act*. Public hearings would be mandatory.

- All biomedical waste management facilities *not* developed as part of a regional plan would require approval under the *Environmental Assessment Act*. Approval under this Act requires that the proponent assess all possible alternatives to the proposed facility.

- The approval requirements would apply to public, private and joint venture biomedical waste management facilities.

PUBLIC CONSULTATION PROGRAM

- The 60-day public consultation program calls for comment on all aspects of the strategy, with a particular emphasis on the following proposals:

  - Definition of biomedical waste under Regulation 309

  - Structure and terms of reference for the regional biomedical waste planning committees

  - Ownership and operation options (private, public, and joint venture) of regional biomedical waste management facilities; and

  - Approvals requirements.

CURRENT BIOMEDICAL WASTE GENERATION AND DISPOSAL PRACTICES IN ONTARIO

- Biomedical waste is generated by hospitals, laboratory and research facilities, doctors, dentists, etc. About 60 per cent of Ontario's biomedical waste is exported out-of-province for disposal; the remainder is disposed of in 100 small on-site hospital incinerators throughout the province. These incinerators are old and lack modern air pollution controls.

- Ontario generates between 10,000 and 15,000 tonnes of biomedical waste each year which accounts for less than 10 per cent of the total waste generated by the health-care sector.

- Approximately 60 per cent of biomedical wastes are produced by hospitals while other small generators such as laboratories, clinics, doctors, and dentists comprise the remainder.

- Biomedical waste is currently regulated in Ontario under Regulation 309 which defines pathological waste.

- Generators of biomedical waste are required to register with the Ministry of the Environment. Receivers of biomedical waste must either fall within the definition of an "existing hospital incinerator" or must have a Certificate of Approval which permits the acceptance and disposal of biomedical waste at the site.

- There are currently seven approved commercial biomedical waste carriers operating in Ontario. Several hospitals also hold biomedical waste management approvals for the transportation of their wastes to other hospital incinerators.

EXISTING DISPOSAL TECHNOLOGY

- The primary method of biomedical waste disposal has been incineration. Incineration is the only technology currently approved by the Ministry of the Environment for large regional biomedical waste management facilities.

- On April 11, 1991, the Honourable Ruth Grier, Minister of the Environment announced a ban on future municipal solid waste incinerators in Ontario. The announcement included the review of the Certificates of Approval and monitoring requirements for six solid waste incinerators currently in operation in Ontario or already approved for future operation. Incineration of municipal solid waste hinders efforts to promote waste reduction through the 3Rs of waste management (reduction, reuse and recycling).

- However, the ban on garbage incineration does not include the use of incinerators for the destruction of hazardous and biomedical waste. While recognizing that there are no 3Rs alternatives to the management of biomedical waste, alternatives to incineration are being examined for application in Ontario. Incineration technology may still be required for the destruction of human and animal tissues, body parts, and microbiological/pharmaceutical waste.

NON-INCINERATION DISPOSAL TECHNOLOGIES

- Non-incineration technologies have been developed and are being used both in Ontario and other jurisdictions in response to increased public concern with biomedical waste incineration.

Autoclave

- The autoclave, which resembles a large pressure cooker, is a steam sterilization process which uses wet heat, under pressure to kill microbial contamination.

- The steam process is used to achieve temperatures between 125 and 165 degrees Celsius. After a 30-minute heat cycle is over, the steam is discharged and the condensation, in the form of water, is released to the sewer system. The sterilized waste is removed and possibly shredded and/or over-bagged then sent to a landfill site. This process is long established with a number of companies manufacturing equipment.

Microwave Technology

- Microwave is used to thermally treat shredded biomedical waste.

- The microwave unit is approximately the size of a transport truck trailer.

- The waste is purged with steam and shredded prior to microwaving. The waste material is then moistened. Microwaves are used to maintain a proper operating temperature of 95 degrees Celsius for 30 minutes. The treated waste is then disposed of in a landfill site.

Shredding/Disinfection (Hammermill)

- This process is a combination of mechanical shredding and chemical disinfection to treat biomedical waste.

- Waste is conveyed into a feed hopper and sprayed with a bleach solution. The waste and bleach solution pass through a low speed shredder and then into a high speed hammermill where the waste is reduced to a granular size and thoroughly mixed with the bleach solution creating a slurry of disinfected waste. The slurry is dewatered and the liquid is drained into the sewer and the disinfected solid material disposed of in a landfill site.

SELF-SUFFICIENCY AND THE 3RS

- Ontario's overall waste strategy supports reduction and self-sufficiency in the management of waste. The current export of 60 per cent of Ontario's biomedical waste to Quebec and the USA for disposal is not consistent with the strategy. The purpose of the strategy is to develop sufficient treatment and disposal infrastructure in Ontario to achieve self-sufficiency in biomedical waste management.

- Like other wastes, biomedical waste should be managed as close as possible to the point of generation. This philosophy follows the ethic of a "conserver society" and reinforces the idea of local responsibility for the generation, treatment, and disposal of biomedical waste.

- The new facilities developed under this strategy will only treat and dispose biomedical waste where application of the 3Rs at this time is minimal. General refuse from hospitals will no longer be incinerated and should be reduced, re-used, or recycled.

Copies of **A Strategy for the Development of New Biomedical Waste Management Facilities in Ontario** may be ordered from:

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